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ABSTRACT

This paper presents the results of a pilot study which explored the relationship between temperament, interest, and ability and the educational and vocational development of 44 disadvantaged black females. Data used in the study were obtained from the "Sixteen Personality Factor Questionnaire," the "Occupational Interest Inventory," and the "Employee Aptitude Survey." The variables considered included the following: (1) formal educational attainment: (2) participation in a career development program versus nonparticipation and higher versus lower rated participants: (3) underachievement in basic academic skills: (4) employment stability: and (5) exploitation of job leads. Significant simple correlations are reported and discussed, and multiple regression analysis is used to suggest hypotheses for future research. (Author/EB)

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Psychological Variables Related to Educational and Career Development in a Group of Disadvantaged Minority Women

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Running Head: Correlates of Education and Career Development in Minority Women

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Abstract

This paper presents the results of a pilot study which explored the temperament, interest, and ability correlates of a number of variables related to the educational and vocational development of 44 disadvantaged black females. Dependent variables are: Formal Educational Attainment; Participation in a Career Development Program versus Non-participation and Higher versus Lower Rated Participants; Underachievement in Basic Academic Skills; Employment Stability; and Exploitation of Job Leads. Independent variables are: The Sixteen Personality Factor Questionnaire, the Occupational Interest Inventory, and the Employee Aptitude Survey. Significant simple correlations are reported and discussed, and multiple regression analysis is used to suggest hypotheses for future research.

Psychological Variables Related to Educational and Career Development in a Group of Disadvantaged Minority Women

The effectiveness of programs intended to help disadvantaged minorities obtain better jobs and more education has received a good deal of attention from researchers: we know how many clients completed training programs, earned college credits, found jobs, or attained some other objective. Relatively little is known, however, about the psychological characteristics which help or hinder the disadvantaged adult in achieving these goals. Obviously, insight into such variables would be of considerable value to counselors and program planners.

This paper reports the results of a pilot study which explored the ability, interest, and personality correlates of a number of variables related to career and educational development in a small group of minority women.

I. Method

Subjects

Subjects were 44 black females who had been employed as non-professionals in a Model Cities agency and who had voluntarily availed themselves of a vocational counseling and placement service when funding cut backs eliminated their jobs. (The Model Cities program provided federal funds for services to residents in selected economically depressed urban centers.) Their average age was 33. Many were considered "hard core unemployed" before being

hired and continued to receive welfare benefits while employed. Hiring criteria had been relaxed as a matter of policy to provide job entry opportunities, and an educational and career development program was instituted. Largely because of this program, the average grade completed was 13; almost all subjects were high school graduates, but none had completed college.

Counselees who did not complete the entire 3 hour battery of tests were dropped from the study; (these women, it should be noted, appeared to differ from the present group in a number of important ways). Data were available for only a few males, and they too were dropped.

The relationships observed in this study may be partly a function of the personal, vocational, and cultural characteristics of the particular study sample and of the rather stressful job-seeking circumstance under which testing occurred.

Dependent Variables

All variables of educational or vocational interest which could be obtained from the data generated in the course of the vocational counseling and placement service have been studied. They are: Level of Formal Education; Participation in a Career Development Program versus Non-participation and Higher versus Lower Rated Participants; Underachievement in Basic Academic Skills; Employment Stability; and Exploitation of Job Leads. Each is explained fully below.

Independent Variables

Independent variables were the Employee Aptitude Survey (EAS: Ford, Grinsley, Ruch, & Warren, Note 2), the 16 Personality Factor Questionnaire (16PF: Cattell, Note 1), and the Occupational Interest Inventory (OII): Lee & Thrope, Note 3). Table 1 gives a brief description of the subtests included in this battery. The EAS and 16PF

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insert Table 1 about here

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were factor analytically developed and measure aptitude and personality dimensions, respectively. The factoral composition of the OII is not reported by its publishers, but its subtests appear to measure much the same drives as emerge from factor analysis of similar vocational interest tests. This battery, therefore, provided a reasonably comprehensive and efficient survey of the major intra-psychic domains: abilities, temperament, and interest-motivation (Cattell, 1971, pp. 354-359; 1977, pp. 69 ff, 117 ff, 734).

Statistical Treatment

Except in one instance where only T tests were possible, product moment correlations were calculated between each dependent variable and all independent variables. In addition, multiple regression analysis was performed using a step wise procedure in which the independent variable which accounts for the greatest variance is entered into the MRE first, followed by the variable which, together with the first, makes the greatest addition to the explained variance; this process is continued until addition of further independent variables

does not add significantly to the multiple R. These multiple regression equations (MREs), based as they are on small Ns, drawing on a large number of independent variables, and lacking cross validation, are extremely fragile and provide little basis for conclusions as such. They are reported here only to suggest hypotheses for further research and to illustrate the complexity of the psychological factors which can be expected to underlie educational and vocational growth. Beta weights have little meaning for such small Ns and have not been reported. A partial correction for the "shrinkage" to be expected on cross-validation has been applied to the explained variance in order to provide a somewhat more realistic estimate of R^2 (Darlington, 1968). Reported Fs are unadjusted.

II. Formal Educational Attainment

The level of formal educational attainment was defined as the highest school grade completed. Because few students leave school much before it is legally possible to do so at age 16, what is being measured here is chiefly perseverance in school through senior high (or G.E.D.) and beyond. In the present case, the level of formal education reflects both long term achievement and the more recent educational opportunities provided by the Model Cities program itself. Principal areas of post secondary concentration were: social sciences, social work, early childhood development, elementary education, and secretarial science. Very little course work was undertaken in languages, mathematics, or science. A number of different educational institutions and geographic regions were represented, and

the intervals since completion of junior high school rangedfrom 4 years to several decades. Correlations are postdictive, reflecting both the causes and the effects formal school experience in some unknown proportions.

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insert Table 2 about here

Results and Discussion

Simple correlations. Better educated subjects emerge (Table 2) as more verbal and extroverted: there are positive correlations with verbal interest and ability, social venturesomeness (H+), and group dependence (Q2-) (H+ and Q2- are both indicative of extroversion); and negative correlations with computational and clerical (Businessness) interests. When taken together with high interest in professional level employment (Level of Interest), this pattern is clearly adapted to the demands of work and study in the helping professions.

Multiple regression analyses. In the MRE, the broad word-and-people complex is marked by Verbal Interests, while Level of Interest absorbs the contribution of low Business Interests. The entry of Tough-mindedness (I-) is interesting because the opposite trait of Tender-mindedness (I+) is usually associated with higher levels of formal education: the reversal of this pattern leads to the hypothesis that tough-minded realism may prove more serviceable when educational goals must be pursued in an unsupportive, ghetto environment.

III. Participation in a Career Development Program

As non-professional employees, all subjects were given the opportunity to complete high school, if necessary, through the G.E.D. and to continue their education at the post-secondary level. Academic and career counseling, tuition, books, transportation, and released time from work were provided. Advancement in the Model Cities program was explicitly linked to educational progress. The next two dependent variables tap that part of the total school experience which reflects the subject's more recent involvement with this career development program.

Participation versus Non-participation

It was possible to contrast women who had made use of this opportunity with a handful of subjects who did not. All non-participants had been eligible to participate; several had declined to do so over a period of years.

Results and discussion. T tests for differences in means are given in Table 1. Participants were more socially venturesome (H+), more conscientious (G+), more interested in verbal and personal-social occupations, and less interested in scientific, manipulative, and computational occupations. Like better educated women, participants were characterized by a broad word-and-people orientation, a fact which is not surprising in view of the relatedness of the two dependent variables. The importance of conscientiousness (G+) is consistent with a more serious attitude toward career advancement.

Higher versus Lower Rated Participants

Each of four counselors on the staff of the administering agency was asked to rate each subject who made at least some use of this career development opportunity as above average, average, or below average in the quantity and quality of her involvement. Raters were asked to take into account any extenuating circumstances, such as difficulties in arranging released time, which they felt to be important. The dependent variable is the average of these four ratings. Interrater reliability was .73, which was significant beyond the .01 level.

Results and Discussion

Simple correlations. As shown in Table 2, verbal interest attained a significant simple correlation; Personal Social interest (not shown in the table) attained a correlation of .313, which was significant just under the .05 level in this small sample.

Multiple regression analysis: Group dependence (Q2-), self discipline (Q3+), and verbal interests enter in the MRE (Table 2) to echo the word-and-people pattern and the conscientiousness (G+) observed above. In surprising contrast, however, H enters the MRE as H- or shyness; since H- is positively associated with G.P.A. in the general population, its role here may be related to the fact that counselor ratings were based upon G.P.A. as well as upon hours completed. The presence of radicalness (Q1+) in the MRE suggests that this trait may have been related to an aggressive, theoretically oriented advocacy of the poor and may thus have indirectly led to

interest in further training. The small adjusted variance accounted for by the MRE may be the result of the relative unreliability of the dependent variable or of restriction of range--all subjects having actually participated to some degree in the career development program.

Since the non-participants contrasted above with participants were not included in the present group, the parallels between the two sets of correlates are to some extent cross-validating. The relatively strong differentiation between participants and non-participants and the relatively weak differentiation among participants suggests that it may be the former distinction which is more psychologically crucial.

In general, the personality, interest, and ability correlates of formal schooling and participation in an educationally related career development program were, for these subjects, those which would also make for success in one of the helping professions or, at least, in an agency where social goals were paramount. Indeed, this was the theory on which the Model Cities career development program was constructed. The present data, therefore, offer some empirical support for the soundness of this plan and, in general, for the common sense supposition that career and educational programs which parallel each other are mutually reinforcing.

IV. Underachievement in Basic Academic Skills

The three dependent variables studied thus far were measures of the subject's involvement in formal academic programs. A

different but equally important consideration was the degree to which she had realized her potential for achievement in the fundamental verbal and mathematical skills.

The contrast between measures of achievement which are heavily influenced by school learning and measures of general reasoning ability which are relatively free from such influences is a widely used index of under and over achievement (Cattell, 1977, pp. 154-161). A dependent variable was therefore constructed by dividing the sum of the Verbal Reasoning and Numerical Reasoning subtests by the sum of the Verbal Comprehension and Numerical Ability subtests. (The name of the Verbal Reasoning tests is misleading: actually, the vocabulary, syntax, and content of the items are quite simple--the difficulty lies in educing the relationships involved.) Higher quotients mean that potential was greater than achievement as these are here defined. Only the 16PF and OII subtests were used as independent variables. Dependent and independent variables were observed concurrently.

Results and Discussion

Simple correlations. Variables having significant simple correlations indicate (Table 2) that underachieving subjects were more tough-minded and self-reliant (I-), more unimaginative and down to earth (M-), and more anxious and guilt-prone (O+). The tough-minded, down-to-earth realism of I- and M- suggests a temperament not inclined toward the less immediately useful activities which build academic competence. The anxiety (O+) of these underachievers

may have arisen from the testing situation itself or from the prospect of a job search for which they felt poorly prepared academically. It would be of considerable interest to know whether this anxiety represented a long standing, chronic reaction to school and testing or was limited in its significance to the particular circumstances of this study. Although the present data cannot shed any light on the question, it is possible that the anxiety was a cause rather than an effect of underachievement, and it may even have differentially influenced test performance.

Multiple regression analysis. In the MRE (Table 2), tough-minded realism (I-) absorbed the variance which would have been contributed by anxiety (O+). Since these two variables (I- and O+) are negatively correlated in the general population (Cattell et al., 1977, p. 114) their close relation in the present group is emphasized. The presence of Manipulative Interest in the MRE reinforces the picture of down-to-earth practicality already suggested by I- and M-. Why radicalness (Q1+) should be associated with underachievement is puzzling. Perhaps it reflects an analytic bias which is associated with greater problem solving ability but which also conflicts with traditional academic values as presented in ghetto schools. This speculation might still be consistent with the positive association between radicalness (Q1+) and more intense involvement in career development programs if the hypothesized conflict were absent at the post secondary level.

It is noteworthy that the vocational interests subtests produced no significant simple correlations. Although Manipulative Interest does make a significant contribution to the present MRE when temperament variables are controlled, multiple correlations using interests variables alone (this MRE is not shown) accounted for only trivial adjusted variance; in contrast, the MRE based in temperament variables alone (this MRE is not shown) accounted for over 40% of the adjusted variance. If motivation plays an important part in the transformation of fluid ability into crystalized achievement, why was that not manifested here via vocational interests? Important negative correlations with school related interests might especially have been anticipated, and, indeed, such academic interests were associated above with higher levels of formal education. This is a very puzzling result. It may be that both temperament and basic ability variables are more closely related to the early home and school environment and to genetic factors, while vocational interests tend to develop later as a result of broader influences. If this were the case, basic abilities might be related to temperament traits while remaining relatively free from the influence of the late adolescent and adult school experiences assessed in this study; interest variables might then come into play in determining later willingness to continue with one's education. However, speculation at this point is less important than further research to determine whether these observations are replicable. In this regard, it should be noted that these results failed to replicate in a

small group of high school age minority women tested under different circumstances and representing rather different educational, vocational, and personal characteristics. While this failure to replicate appeared to be at least partially the result of other, irrelevant factors, it does suggest that the present observations may be specific in some way to subjects very similar to those in the present study and observed under similar circumstances.

V. Employment Stability

This dependent variable was defined as the number of jobs held in the course of the preceding five years. It was reasoned that upward mobility would normally be associated with advancement in the same job, while frequent job changes would be indicative of poor vocational adjustment of some kind. Five years were felt to be long enough to reflect a trend but short enough to include the employment experience of younger subjects.

Results and Discussion

Simple correlations. The simple correlations (Table 2) indicate that subjects with less stable employment histories were younger, less self-disciplined (Q3-), less emotionally stable (C-) and more anxious and guilt prone (O+), more worldly and sophisticated (N+), more mathematically able, and less interested in outdoor (Natural) occupations. The anxiety which appears here may be situational, reflecting the serious concern that women with unstable employment histories might be expected to feel when again entering the labor

market; or it may reflect a chronic neuroticism which would itself contribute significantly to a poor employment history. That women who held more jobs were younger may presumably be attributed to the causes which are commonly cited as handicapping less mature workers: lack of training and experience, poor motivation, and the restlessness of youth.

Unstably employed women were also more worldly wise (N+); unfortunately, this shrewd sophistication does not seem to have helped in resolving their problems in the labor market, if indeed its presence was not partly the result of repeated failures there. With N+ we may be observing a "street savey" which is non-adaptive for more conventional types of employment. The remaining variables having significant simple correlation--age, numerical ability, and aversion to "dirty hands" (Natural) occupations--are best understood in the context of the multiple regression analysis.

Multiple regression analysis. The MRE (Table 2) is somewhat embarrassing in its riches: ten independent variables enter an equation based on an N of 42. The fact remains, however, that nine of these variables do make substantial contributions. In addition to the variables already mentioned as having significant simple rs, a number of very revealing interests variables also emerge: low professional interest (Level of Interest), high scientific interest, high verbal interest, low computation interest, and low personal-social interest. When these are taken together with aversion to "dirty hands" (Natural) occupations, a pattern emerges in which

emotional instability is associated with conflicts in interests amounting almost to an impasse. On the one hand, negative weights for "dirty hands" (Natural) and personal-social occupations indicate little interest in outdoor, service, or production work; on the other hand, a negative weight for professional and paraprofessional occupations (Level of Interest) indicates an aversion to the higher level white-collar jobs appropriate to high verbal and scientific interests. Minor variations on this theme may perhaps be seen in conflicts between high scientific and high verbal (i.e., literary) interests, between low computational interest and high numerical ability, and between low computational interests and high scientific interests. The variance which would have been accounted for by numerical ability was absorbed by the age variable, suggesting that the positive association between math ability and unstable employment might be indirect, stemming perhaps from the younger subjects more recent school experience with math fundamentals. The contribution of shrewdness (N+) was subsumed under low Natural ("dirty hands") interest, thus adding an interesting nuance to the "street savey" discussed above.

It is interesting that anxiety (O+) changes its sign from negative in the simple r to positive in the MRE. This phenomenon is difficult to interpret, but it may shed some light on the question of chronic versus transitory anxiety raised above. One may speculate that once chronic emotional instability (C-,Q3-) has been controlled, O+ may reflect higher levels of anxiety associated with

greater motivation to find work on the part of women who had held steady jobs and a corresponding resigned complacence on the part of subjects whose experience was less fortunate.

Manpower training programs for the disadvantaged have aimed principally at helping the client acquire the skills needed for entry into the labor force. The fact is, however, that economic independence means more than just finding a job: it means keeping it as well. The present data suggest that where stable employment is the goal, adequate emotional adjustment and an appropriate, mutually consistent pattern of interests and abilities may be critically important.

VI. Exploitation of Job Leads

The job seeker's willingness to follow through on the job leads provided her is, of course, crucial to successful placement. A measure of this variable was obtained by dividing the number of leads supplied each client by the number of applications for employment which actually resulted from them. Referrals were to suitable openings in which the subject expressed an interest but were not, in the majority of cases, prearranged interviews. Subjects were tested at the initial counseling interview before any employment leads were made available.

Results and Discussion

Simple correlations. Interpretation of the correlates of this dependent variable is complicated by the fact that a few subjects continued to be employed by the Model Cities program during some or

all of the period observed. Although warned that their jobs were being terminated or were in jeopardy and, in theory, given released time for interviews, these subjects may have felt less urgency in seeking other employment or might in fact have experienced difficulties in obtaining released time. A comparison of the frequency with which leads were followed up by already terminated and not-yet-terminated subjects indicates that the former did indeed see more leads through to application. To some extent, therefore, the observed correlates might reflect these circumstances or some characteristic of the still employed subjects causing them to be selected for somewhat later phase out. The greater overwroughtness (Q4+) and, to a lesser degree, the poor verbal ability of subjects who made more efficient use of job leads might especially lend themselves to such an explanation.

Taking the data at face value, however, the simple correlations (Table 2) indicate that, as might be expected, those who followed up a greater percent of their job leads were significantly more conscientious (G+).

Multiple regression analysis. Multiple regression analysis (Table 2) suggests that these more conscientious subjects might also be more overwrought (Q4+), more independent (Q2+) more tender-minded and sensitive (I+), less verbally competent, and less interested in verbal occupations.

The negative weights for verbal interests and ability suggest that more verbal subjects might have been better prepared vocationally

or might have viewed further professional training as a realistic alternative to work: both would be consistent with greater selectivity in following through on available employment opportunities. We are unable to suggest an explanation for the contribution of tender-mindedness (I+) to the MRE for this dependent variable.

It is not surprising that women who took the search for work more seriously were more conscientious and more independent, but it is a little startling to observe that they were also more overwrought. Possibly this overwrought anxiety stemmed from economic circumstances which were more exigent and therefore more motivating. Indeed, one cannot help being struck by the grimness of this picture--especially by the combined importance of superego (G+) and emotional stress (Q4+). It is not known whether the disadvantaged women who searched so diligently for work actually found better jobs or any jobs at all, but the present data suggest that their efforts may have owed more to economic necessity, a sense of duty, and limited educational prospects than to the joys of self fulfillment.

Limitations of the Pilot Study and Conclusion

The results of this pilot study must be viewed as quite tentative because of the small N and because of the lack of clarity in some of the dependent variables. Whether what has been observed here can be generalized to other subjects observed under other circumstances must await further, more extensive research. The multiple regression equations reported here, based as they are on small Ns, drawing on

large numbers of independent variables, and lacking cross-validation, provide far too fragile a basis for conclusions; they have been used only to suggest hypotheses for further study and to illustrate the complexity of the psychological factors which may be expected to underlie educational and vocational growth.

It is the authors' hope that this preliminary study will stimulate interest in further, large-scale research. Such research can be expected to have an important impact on the effectiveness of programs designed to serve disadvantaged minorities and to add substantially to the theory of vocational and educational development.

Reference Notes

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Table 1

Description of Independent Variables; Temperament, Ability, and Interest Means of Participants and Non-participants in a Career Oriented Academic Development Program

Test		Participants N = 35	Non-Participants N = 9	
Sixteen Personality Factor Questionnaire (16PF)				T
Low(-)	High(+)			
A: Reserved	Outgoing	6.429	5.333	1.59
B: Low Intelligence	High Intelligence	4.200	3.778	.83
C: Emotionally Unstable	Emotionally Stable	5.889	5.333	.68
E: Submissive	Dominant	5.857	4.778	1.44
F: Serious	Happy-Go-Lucky	5.743	5.111	.87
G: Expedient	Conscientious	7.171	6.000	2.15*
H: Shy	Socially Bold	5.943	4.222	2.38*
I: Tough-Minded, Realistic	Tender-Minded, Sensitive	5.029	4.889	.22
L: Trusting	Suspicious	5.343	4.667	.84
M: Practical	Imaginative	4.943	4.667	.41
N: Artless, Naive	Shrewd, Worldly	5.371	5.889	.78
O: Untroubled	Anxious, Guilt Prone	4.371	5.222	1.09
Q_1: Conservative	Radical	4.771	4.111	1.71
Q_2: Group Dependent	Independent	5.000	5.444	.65
Q_3: Undisciplined Self-Conflict	Self-Disciplined, Integrated	6.571	6.111	.62

Table 1 (continued)

Test			Participants N = 35	Non-Participants N = 9	T
Sixteen Personality Factor Questionnaire (16PF) (continued)					
	Low(-)	High(+)			
Q_4:	Relaxed	Overwrought	4.371	4.333	.05
M.D:	Responds to Test Items Frankly	Tends to Put Self in Favorable Light	6.857	7.444	.91
Employment Aptitude Survey (EAS)					
	Verbal Comprehension (general vocabulary)		48.029	43.000	1.53
	Numerical Ability (whole number, fraction, and decimal computation)		44.057	42.111	.64
	Visual Pursuit		39.143	39.667	.17
	Visual Speed and Accuracy		48.629	47.333	.30
	Space Visualization (three dimensional spatial relations)		35.743	35.667	.03
	Numerical Reasoning (numerical progressions)		47.200	44.889	.81
	Verbal Reasoning (induction of relations among simple factual statements)		49.029	42.222	1.80

Table 1 (continued)

Test	Participants N = 35	Non-Participants N = 9	
Occupational Interest Inventory (OII)			T
Personal-Social	51.400	41.111	2.77**
Natural (outdoor)	43.400	44.889	.55
Mechanical	48.686	45.444	1.21
Business (clerical, office)	54.714	45.556	.25
Artistic	46.457	48.333	.74
Scientific	48.771	54.556	2.07*
Verbal	52.657	48.556	2.76**
Manipulative (working with hands)	52.514	56.222	2.02*
Computational	53.800	61.333	2.69**
Level of Interest (low skilled versus professional)	56.257	54.222	.49
Age	32.629	33.333	.90

Note. Means and standard deviations, respectively, are: 16PF 5.5, 2; EAS 50, 10; OII 50, 10. 16PF and OII norms are for the general female population; EAS norms are for working male population.

*p <.05.

**p <.01.

Table 2

Significant Simple Correlations and Multiple Correlation Analyses

Variable	Sign of Beta Weight	F	Simple r
Formal Educational Attainment			
Q_2: Independence	-	22.693**	-.376*
Verbal Interest	+	20.017**	.327*
(Verbal Comprehension)			.319*
(H: Social Boldness)			.353*
(Computational Interest)			-.308*
Level of Interest	+	15.477**	.361*
(Business Interest)	-		-.325*
I: Tender-Mindedness	-	6.961*	
N = 43	R^2cv^a = .407**		
Higher Versus Lower Rated Participants in a Career Development Program			
Verbal Interest	+	14.025**	.341*
Q_1: Radicalness	+	7.665**	
Q_2: Independence	-	6.304*	
H: Social Boldness	-	7.935**	
Q_3: Self-Discipline	+	4.881**	
N = 35	R^2cv^a = .175		

Table 2 (continued)

Variable	Sign of Beta Weight	F	Simple r
Underachievement in Basic Academic Skills			
I: Tender-Mindedness	-	24.302**	-.530**
(O: Guilt Proneness)			.427**
M: Imaginativeness	-	14.944*	-.329*
Q_1: Radicalness	+	6.358*	
Manipulative Interest	+	4.399*	
N = 44 R^2cv^a = .385**			
Employment Stability			
C: Emotional Stability	-	27.160**	-.528**
(Q_3: Self-Discipline)			-.316*
Natural Interest	-	29.615**	-.429**
(N: Shrewdness)			.342*
Level of Interest	-	20.223**	
Numerical Ability	+	2.960	.336*
Scientific Interest	+	12.375**	
Verbal Interest	+	12.522**	
Computational Interest	-	11.192**	
Personal-Social Interest	-	8.677**	
Age	-	9.422**	-.307*
O: Guilt Proneness	-	5.560*	.313*
N = 42 R^2cv^a = .570**			

Table 2 (continued)

Variable	Sign of Beta Weight	F	Simple r
Exploitation of Job Leads			
G: Conscientiousness	+	18.836**	.423**
Q_4: Overwroughtness	+	10.012**	
Verbal Interest	-	6.919*	
Q_2: Independence	+	6.007*	
Verbal Comprehension	-	5.201*	
I: Tender-Mindedness	+	5.178*	
N = 38	R^2cv^a = .318*		

Note. 16PF variables are labeled by descriptive terms as higher (+) pole. Sign of the Beta Weight indicates whether high score added to or detracted from performance on criteria.

Variables having significant simple rs but not entering the MRE are given in parentheses; non-significant rs are omitted.

[a]Variance partially corrected for estimated cross-validation shrinkage.

*p <.05

**p <.01